

INITIAL STATEMENT OF REASONS

Utility Clearing Exemption, 2006

[Published November 17, 2006]

Title 14 of the California Code of Regulations (14 CCR), Division 1.5, Chapter 7 Fire Protection, and Article 4:

Amend:

§ 1257 Exempt Minimum Clearance Provisions-PRC4293

The proposed regulation amends the fire prevention standards for electrical utilities. The proposed regulation adds § 1257(a)(3), a new exemption to existing utility vegetation clearing requirements. The proposed exemption allows for healthy, mature trees (trunks and limbs), that are sufficiently rigid so they do not present a risk to public safety, to be closer to powerlines than the minimum clearing distance under existing regulations. These trees/limbs are commonly referred to as major woody stems, or MWS.

The new exemption would reduce the allowable minimum clearance between the MWS and energized lines to six inches, compared to the existing clearing requirement of four feet (for lines less than 75,000 volts). The proposed exemption would be permitted for a limited period, expiring December, 31 2008. The exemption would apply to utilities lines in State Responsibility Area (SRA).

PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS

Background

The amount and size of wildfires on wildlands in SRA of the State varies widely each year because of the unpredictable intersection of weather, vegetation, human presence, and other fire hazards. Total annual statewide wildfire has averaged about 500,000 acres between 2000 to 2004, with fire on lands protected by CDF (and its contracted partners) totaling about 100,000 acres per year.

Electrical utility lines are one of the hazards that cause these wildfires. Electrical utility lines can cause fires when high winds cause vegetation to sway into powerlines, break off limbs or cause trees to fall into the power lines usually under dry weather conditions. High winds can also cause vibration in lines that

can break or stress utility connectors. In these situations, electrical arcing (an electrical transfer of energy) can occur. When combustible vegetation comes in contact with the arcing, a fire can ignite. With tens of thousands of miles of transmission and distribution lines on wildlands, the risk of ignition of a wildfire is considerable and the effort to meet this risk and prevent wildfires from utility line ignition is substantial.

Wildfires due to powerlines accounted for 141 fires on CDF Direct Protection Areas and damaged 808 acres in 2005; in some years thousands of acres have been damaged. According to the CDF information

(http://cdfdata.fire.ca.gov/incidents/incidents_statsevents), powerlines have caused, on average 3% of the annual fires from 2000-2005, and 2% during 2006. With wildfire suppression and loss of assets costing thousands of dollars per acre, millions of dollars in suppression costs and natural resources are lost to powerline ignited fires every year. Well implemented vegetation management programs, along with good cooperation between utility companies and CDF, have resulted in minimizing and limiting wildfires from utility lines.

While powerlines are a known ignition source, there is no known documented instance of a fire that was caused merely by the proximity of a major woody stem to the energized conductor (electrical powerline or other electrical utility hardware).

Necessity

Eliminate duplicative and inconsistent regulations: The proposed regulation is necessary to reconcile the existing utility clearing standards exemptions under 14 CCR 1257 with California Public Utilities Commission (Commission or CPUC) General Order 95-Rule 35. This CPUC order similarly regulates utility clearing standards and is the standard for areas outside of SRA. Like the minimum clearance provisions of Public Resources Code (PRC) section 4293, CPUC General Order 95-Rule 35 requires minimum vegetation clearances from high voltage powerlines. However, Rule 35 recognizes that this minimum clearance may be reduced without compromising safety where the tree is mature, healthy and sufficiently rigid to resist deflection by wind so as to prevent contact with the high voltage line. The Commission refers to this as the “Major Woody Stem” (MWS) exception. Vegetation clearing standards similar to CPUC standards are also found in the current model Urban Wildland Interface Fire Codes.

Ensure safety and improve compliance while avoiding unnecessary costs to utilities: The proposed regulation is intended to avoid unnecessary costs to utility companies for maintaining clearing around conductors where hazards for wildfire ignition by lines touching large woody stems have been found to be low. Research conducted by Pacific Gas and Electric (PG&E), a major utility company responsible for maintaining thousands of miles electrical transmission and distribution lines in SRA, has shown that the MWS of healthy, mature trees (of a

minimum size) occurring within the minimum clearance distances of energized powerlines required by PRC 4293 (i.e. less than 4 feet) can remain without risk of conducting the energy (arcing) and without risk of fire. PG&E, along with other utilities and utility consultants, believe the proposed exception is justified since the risk of fire is negligible presenting little risk to public safety. Because there are thousands of MWS and miles of utility powerlines that currently do not meet the existing law and regulations, utilities would incur substantial costs to top, remove, or prune trees; relocate powerlines to avoid MWS; or install power line wire insulation to come into compliance.

Avoid potential adverse environmental effects of complying with existing laws: The proposed regulation could avoid potential significant environmental impacts caused by removing the major woody stems as means of compliance with the existing law. Because one alternative for complying with the existing clearing laws is to remove the vegetation (large woody stem or tree), full compliance with clearing standards could result in removal of thousands of large trees which contribute to multiple environmental and social values. Many tree removals would involve older, majestic trees that frequently occur not in an isolated setting, but in utility customers' front yards and neighborhoods. Not only would the removal of these trees create an alteration of habitat and the attendant risks of adverse impacts to forest resources, but also considerable public interest and controversy.

SPECIFIC PURPOSE OF THE REGULATION

The purpose of the regulation is to add MWS exception subsection (a)(3) to 14 CCR § 1257 as provided for by PRC 4293. The regulation:

- avoids pruning or removing trees that are technically within the prescribed clearance requirement but pose no risk of ignition. Because the MWS eligible for exemption have been determined through inspection to be of sufficient size and/or having the necessary characteristics such as rigidity and bark thickness, they do not present a risk of ignition through contact;
- reconciles 14 CCR 1257 with the California Public Utilities Commission General Order 95, Rule 35;
- provides a measure of fire protection more consistent with the actual risk involved;
- protects mature and stately trees from needless pruning or removal;
- preserves vital habitat to the greatest practical extent consistent with public safety and electric system reliability;
- clarifies enforcement standards for CDF;
- reduces enforcement related costs incurred by CDF related to PRC 4293;
- clarifies compliance standards for the regulated public with regard to PRC 4293; and
- allows for both tree trunks and limbs, when the specific above characteristics are met, to be eligible for the exemption.

Addition of subsection 1257 (a)(3) provides for inclusion of a MWS as an exemption to PRC 4293 clearing requirements and defines the characteristics of the MWS along with the new minimum clearance requirements. Characteristics necessary for inclusion of a MWS as an exemption to the existing rules include:

- the trees must be established in their current location for a minimum of ten years;
- are vigorous and healthy;
- the trunks and major limbs are at least six inches from the line; and
- trunks and limbs are of sufficient strength and rigidity to prevent the trunk or limb from encroaching within six inches of the line.

This section also establishes a limited time frame to implement the regulation (sunset date). The purpose of the time limitation is to provide an experimental period for implementation, followed by an evaluation the results. If the interim rules prove effective, permanent rules may be requested by the utilities and/or the Department and considered by the Board.

ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES

The State Board of Forestry and Fire Protection (Board) has considered alternatives to the regulation proposed. The alternatives include various minimum clearing distances for MWS, consideration of climatic factors (reasonably foreseeable winds) as criteria for providing the exemption, and minimum size standards defining a large woody stem.

These alternatives were rejected as the Board found the proposed alternative provides appropriate flexibility in determining which trees/limbs should apply to the new minimum clearing exemption. Such flexibility provides an opportunity to evaluate the efficacy of the temporary rule. During the initial experimental period of the proposed regulation, the most appropriate sized MWS eligible for the exemption and the effectiveness of the new minimum clearance standard can be considered prior to adoption of any permanent rule.

POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS

The Board has not identified adverse environmental effects as a result of the proposed rules. The proposed rule is specifically designed to avoid unnecessary tree removal to comply with clearing standards where there has been a demonstrated low risk of fire ignition.

The most substantial potential adverse environmental effects are related to ignition of wildfire resulting from inadequate powerline clearance around MWS

pursuant to this proposal. The concern is during fire season when winds can cause electric lines to sway into close proximity of tree trunks and limbs, the diminished clearance could result in a fire due to contact or electrical arcing.

Wildfires are well known to cause significant and catastrophic damage to a variety of natural resources, although the impacts from wildfire are not chronicled here. The potential adverse environmental effects due to this regulation are low because wildfire ignitions specifically related to implementing the regulation have been demonstrated to be unlikely; MWS exemptions are carefully considered by utility companies; and little information is correlated to known ignitions from MWS. Several factors support the low probability of ignition due the MWS exemption proposal:

1) Results of a PG&E Engineering Test Report: VMS Tree Clearance Test –

This evaluation tested energized power line contact with MWS to evaluate if lines which arc or have direct contact with lines will create fire ignition. Test results showed, under testing conditions at 21kV:

- An energized electrical conductor will not cause a fire unless arcing is present;
- In dry conditions, arcing does not occur when an energized distribution line is ¼ inch from the nearest portion of a major woody stem.
- In wet conditions (when greater conductivity occurs) arcing does not occur when an energized distribution line is 1 inch from the nearest portion of the
- If arcing does occur, the arc will self-extinguish when an energized electrical distribution conductor moves 4-6 inches away from the nearest portion of the MWS;
- Burning embers from the bark of a MWS dropped into dried shredded paper (representing straw or dried foliage) did not start a fire (under simulated conditions). The embers did not have enough retained heat capacity to ignite the dried paper.

2) Utility company vegetation inspection and maintenance programs --

Safeguards that minimize the wildfire risk associated with MWS trees and energized powerline contact are built into utility company vegetation management services program. For example, PG&E maintains a database inventory of MWS trees that is updated every year.

Six utilities throughout the state apply the CPUC MWS criteria to determine if the subject tree is eligible for the exemption. The six are, Pacific Gas and Electric Company, Southern California Edison, San Diego Gas & Electric Company, Sierra Pacific Power Corporation, PacifiCorp and Sacramento Municipal Utility District. These companies encompass the vast majority of SRA.

Under the CPUC criteria, each tree is initially evaluated by a certified arborist inspector with a minimum of five years' experience. Before a particular tree can

be considered exempt as a MWS (allowing lesser clearing standards allow by General Order 95), the several utilities conduct a seven-point evaluation and the tree must fit all seven of the exemption criteria. The tree must be greater than six (6) inches from the line with no evidence of prior contact with the lines. The tree has to have been established for at least 10 years, must be vigorous and healthy, and with a diameter at breast height (DBH) of at least 10 inches. The size of the trunk or limb at the conductor level must be at least six (6) inches in diameter. The tree must not have “scaffold branches,” below eight and one-half feet from the ground (so the tree can not be easily climbed).

In addition to tree characteristics, local weather conditions, potential line sag or sway, wind and snow loading potential, impacts of other branches and trees, soil conditions and direction of lean are all considered as part of the evaluation.

Additionally, MWS do not include so called, “hazard trees,” that are by definition, not vigorous or healthy but that exhibit some manifestation of decline. In the proposed regulation, dead, dying and defective trees expressly do not qualify for an exemption and require treatment.

PG&E described that it does not keep data discerning whether or not the exempt tree represents a stem or a limb and therefore, PG&E does not actually have an inventory of trees eligible for exemption based upon limbs. Judging from current PG&E data however, most of the MWS tree records are conifers indicating that most are stems rather than limbs. Of the total number of MWS trees in the database, about 7-8% are hardwood species that exhibit the types of branching at issue.

According to its database records, PG&E currently monitors about 9,000 MWS in State Responsibility Areas. In general, the MWS trees in the PG&E inventory are large – over 18 inches DBH and up to several feet in diameter.

3) Expert testimony for scientific basis of exemption provided under CPUC General Order 95 -- Testimony provide by utility experts at previous powerline regulatory hearings in 2004, summarized findings from the CPUC General Order 95 adoption relating to the basis for determining a minimum clearing requirement for all vegetation, including MWS. This testimony included discussion of electrical arcing indicating that arcing occurred at 12,000 volts when the conductors are within 1.5 inches of vegetation. Upon this determination, the CPUC adopted a six-inch clearance standard for MWS, a safety factor of four times. The CPUC General Order 95 requires an 18-inch clearing standard year round on electrical distribution primary lines, except for the six-inch exemption for qualifying MWS among other exceptions such as coated wire.

EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS

The Board staff estimated that this regulation should not have any adverse economic impact on any business. The amendment adds an exemption to existing clearing, reducing the clearing requirement for MWS to a minimum of six inches. This reduction in the clearing requirements is estimated to have a significant positive financial effect for utilities, and potentially utility rate payers, due to the lesser amount of vegetation removal or installation of insulation around line for compliance with existing rules.

ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

The Board has not identified any alternatives that would lessen any adverse impact on small businesses.

TECHNICAL, THEORETICAL, AND/OR EMPIRICAL STUDY, REPORTS, OR DOCUMENTS

The Board relied on the following technical, theoretical, or empirical studies, reports or documents in proposing the adoption of this regulation as referenced in this *Statement of Reasons*:

1. PG&E, April 17, 1998. Joint Parties "Request for Approval of Criteria for Major Woody Tree Exemption to Rule 35 of General Order 95 in re: CPUC I.94-06-012.I"
2. CPUC, October 22, 1997. Opinion announced in Decision 97-10-056 in re: I.94-06-012 Investigation on the Commission's own motion and order to show cause to determine if San Diego Gas and Electric Company should be held in violation of the Commissions' General Order 95 for failure to have exercised reasonable tree trimming practices and procedures.
3. Loughery, R. December, 2004. Testimony on CDF Public hearing on Fire Prevention Standards for Electric Utilities.
4. PG&E, December 2004. Written Testimony of PG&E of Public hearing before the CDF.
5. CN Utility Consulting, December 2004. Written comments in response to CDF rulemaking of October 22, 2004.
6. PG&E Engineering Test Report: VMS Tree Primary Clearance Test – Preliminary Report February 13, 2006. PG&E Engineering and Test Report Number 443-06.1.
7. CPUC. January, 2006. General Order 95. Rule 35.

Pursuant to Government Code § 11346.2(b)(6): In order to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues as those addressed under the proposed regulation revisions listed in this *Statement of Reasons*; the Board has directed the staff to review the Code of Federal Regulations. The Board staff determined that no unnecessary duplication or conflict exists.

PROPOSED TEXT

The proposed revisions or additions to the existing rule language are represented in the following manner:

UNDERLINE indicates an addition to the California Code of Regulations,
and

~~STRIKETHROUGH~~ indicates a deletion from the California Code of Regulations.

All other text is existing rule language.

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